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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,665	09/29/2003	Peter Zhen-Ping Lo	CM05186G	5021
23330	7590	02/15/2007		
MOTOROLA, INC. LAW DEPARTMENT 1303 E. ALGONQUIN ROAD SCHAUMBURG, IL 60196			EXAMINER STREGE, JOHN B	
			ART UNIT	PAPER NUMBER
			2624	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/15/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/674,665	Applicant(s) LO, PETER ZHEN-PING	
	Examiner John B. Strege	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: line 7 discloses "in a subset matches" which is grammatically incorrect. Examiner recommends amending this to recite –in a subset of matches-. Appropriate correction is required.
2. Claim 8 is objected to because the dependency is unclear. Claim 8 has dependency to claim 1 and claim 5 (which also has dependency on claim 1). Claim 5 already incorporates claim 1, and furthermore no specific method for providing the second record identification is given in claim 5, thus it is unclear why it is incorporated into the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-5, and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the database" in line 7. There is insufficient antecedent basis for this limitation in the claim. The dependent claims 2-5 and 8 are rejected also since they depend on this claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 6,7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by the Applicant's admitted prior art (hereinafter "AAPA").

On page 2 of the Applicant's specification (starting on line 8) the AAPA discloses a method for characterizing the probability of a finger print match for each of ten fingers, said method comprising: providing at least a first and a second record identification metric (a matched score is determined for each of the fingers thus there is at least a first and a second score) and adding the scores for the for the compared fingers and dividing the score by the total number of fingers compared to obtain an average matched score (a third metric that is a function of the first and second metric and inherently promotes or demotes the first and second metric since it is averaging the two will promote one metric while demoting the other to find a value that is in between them).

Regarding claim 9, the AAPA recites that the subset is sent to an examiner for review to determine the correctness of the matched prints (lines 17-20).

7. Claims 6, 7 and 9 are rejected under 35 U.S.C. 102(b or e) as being anticipated by Prabhakar et al. *Decision-Level Fusion in Fingerprint Verification* (hereinafter "Prabhakar", note that the article was published in 2001 but the exact date is not known thus this is either a 102b or a 102e).

Prabhakar discloses a method for characterizing the probability of a finger print match for at least one finger (see at least the first paragraph of section 5 on page 93 where four fingers of each individual are used), said method comprising: providing at least a first and a second record identification metric (section 4 discloses the different metrics that are used, a total of four different metrics) providing at least a third record identification metric (again from section 4); demoting or promoting at least one of said first and second record identification metrics as a function of said at least third record identification metric (Prabhakar discloses that the matching algorithms may be combined in groups of three which results in strengthening or weakening the matching depending on which metrics are used (see page 96 beginning under figure 3).

Regarding claim 9, Prabhakar discloses in figure 1 the performance of the fingerprint matchers.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5,8, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prabhakar in view of Setlak et al. USPN 6,181,807 (hereinafter "Setlak").

Prabhakar discloses a method for characterizing the probability of a finger print match for at least one finger (see at least the first paragraph of section 5 on page 93 where four fingers of each individual are used), said method comprising the steps of: providing at least a plurality of match scores for at least one finger (second paragraph of the introduction, also see section 4); providing a number of fingers used in the search (Prabhakar discloses using 4 fingers in the search, first paragraph of section 5); providing a number of records in a database (Prabhakar discloses that 2,672 images are provided in the database, first paragraph of section 5); and calculating a record identification metric based on the plurality of match scores (Prabhakar discloses combining the match scores of the fingers, section 5).

Prabhakar does not explicitly disclose providing a finger index, providing a number of times a finger index appears in a subset of matches or organizing said database records as a function of the calculated identification metric.

Setlak discloses in an analogous environment a method for fingerprint indexing and searching (see title and col. 1 lines 10-15). Setlak discloses that there is a problem that if there is a large database of fingerprints then the comparison will take too long or will be too expensive (col. 1 lines 27-29). To remedy this Setlak discloses providing a

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curliness index for each finger in the database and using this index to sort the fingerprints into a monotonically increasing sequence so that it is easier to determine where the matching print is most likely to be found (col. 8 lines 21-39). This improves the performance of searches by directing those searches to try the most likely areas in which to find a match first. Furthermore if a finger index appears in a subset of matches one time then the likelihood of a match is determined (col. 8 lines 21-39).

Prabhakar and Setlak are analogous art because they are from the same field of endeavor of fingerprint matching.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine Prabhakar and Setlak to provide a finger index, determine if the finger index appears in a subset of matches, and organizing the database records as a function of said identification metric. The motivation for doing so would be to improve the performance of the search for large databases by directing the searches to try the most likely areas first. Thus it would have been obvious to one of ordinary skill in the art to combine Prabhakar and Setlak to obtain the invention as specified in claim 1.

Regarding claim 2, Prabhakar discloses using different combinations of the matching algorithms to improve the strength of the match (section 5).

Regarding claim 3, the subset of matches of Setlak are the most probable matches (col. 8 lines 21-39).

Regarding claim 4, Setlak discloses that if the fingerprint is not matched in the first subset then further enhanced matching can be carried out in other subsets (col. 8 lines 21-50).

Regarding claim 5, as discussed above Prabhakar discloses a method for characterizing the probability of a finger print match for at least one finger (see at least the first paragraph of section 5 on page 93 where four fingers of each individual are used), said method comprising: providing at least a first and a second record identification metric (section 4 discloses the different metrics that are used, a total of four different metrics) providing at least a third record identification metric (again from section 4); demoting or promoting at least one of said first and second record identification metrics as a function of said at least third record identification metric (Prabhakar discloses that the matching algorithms may be combined in groups of three which results in strengthening or weakening the matching depending on which metrics are used (see page 96 beginning under figure 3).

Regarding claim 8, as discussed Prabhakar discloses providing a metric based on a plurality of match scores (section 5 discloses using 4 different metrics).

Claims 10-11 are similar to claim 5 (especially since the claim uses numerous examples of "at least" language so that the majority of the limitations provide no weight to the claim). The only limitations that have not been addressed are calculating a match credibility metric and providing a user with the first metric. As seen in section 5 of Prabhakar a credibility metric is calculated using the identification metric and it is provided to the user (see at least figure 3).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPGPUB 2003/0031348 Multimodal Biometry.

USPN 5,960,101 Expert matcher fingerprint system.

USPN 6,941,003 Method of fast fingerprint search space partitioning and prescreening.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Strege whose telephone number is (571) 272-7457. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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JS


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